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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,039	02/04/2004	Lars Richter	030716 RICHTER	5101

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EXAMINER

COURSON, TANIA C

ART UNIT	PAPER NUMBER
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2859

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/772,039

Applicant(s)

RICHTER ET AL.

Examiner

Tania C. Courson

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The first non-final rejection for claims 1-36 of the last Office action (Filed on December 1, 2004) is withdrawn based on the Heger reference not displaying a compounded angle line. The first non-final rejection is being reissued in this paper.

Drawings

2. The drawings are objected to because of the following:
 - a) Figure 4A is stated to be a substitute for Figure 4, the examiner was unable to determine the change(s) since both Figures look alike.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified

Art Unit: 2859

and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:
- a) Based on substituted drawings filed on March 30, 2005, on page 6, line 8, change “Fig. 1” to “Fig.1A”, and wherever else this appears in the specification and;
 - b) Based on substituted drawings filed on March 30, 2005, on page 6, line 12, change “Fig. 4” to “Fig.4A”, and wherever else this appears in the specification.

Appropriate correction is required.

Claim Objections

4. Claims 2 and 16 are objected to because of the following informalities:
- a) Claim 2, line 9: change “extraction;” to “extraction.” ;
 - b) Claim 16, in line 2, “the machine’s case” lacks antecedent basis in reference to claim 2.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 3-4, 6-7, 12, 14-15, 18, 20-21, 26-31, 33 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Richter (US 6,715,213 B2).

Richter discloses in Figures 1, 1A and 2, an angle measurement device comprising:

With respect to Claim 1:

- a) one or more multi-axis gravity sensing tilt sensor(s) or inertial accelerometer(s) (Fig. 1A, sensor 22), or multiple tilt gravity sensing sensor(s) or inertial accelerometer(s), situated about different axis;
- b) a computing device (Fig. 1A, microprocessor 24) that receives inputs from the said gravity sensing tilt sensor(s) or inertial accelerometer(s) (Fig. 2);
- c) translates expressions of angular measurement and outputs the results for display, computation or extraction (Fig. 1, display 38) and a means of mounting components, comprising a case (Fig. 1, casing 12).

With respect to Claims 3-4, 6-7, 12, 14-15, 18, 20-21, 26-31, 33 and 35:

- a) wherein a means of information extraction is incorporated comprising a communications port or electromagnetic transmitter (Fig. 1, laser 34);

- b) displays the results of the measurements and/or calculations in graphic, numeric format (Fig. 1);
- c) wherein the display format is user controllable allowing selection of either graphic or numeric format (Fig. 1);
- d) wherein multiple displays may be exhibited sequentially (column 3, line 57 through column 4, line 8);
- e) wherein multiple display modes are controllable, being user selectable to exhibit simultaneously or sequentially (column 3, line 57 through column 4, line 8);
- f) wherein angles may be measured and/or calculated in multiple modes comprising various levels of precision and of speed of measurement and/or calculation (Fig. 1);
- g) wherein the modes of measurement and /or calculation may be selected automatically by the machine itself (column 4, lines 37-50);
- h) wherein the modes of measurement and /or calculation may be manually selected by the user (column 3, line 57 through column 4, line 8);
- i) wherein one or more means of orienting the device with respect to distant or remote reference points is incorporated, these means being preferably by use of a laser light or other electromagnetic energy beam projected from the device, but also including optical sight or reticule, audio beam, mechanical arm or extension, or any other manner of remote reference (Fig. 1, laser module 34);

Art Unit: 2859

- j) wherein the measurements and results of calculations may be recorded and later displayed or output for reference (column 3, line 57 through column 4, line 8);
- k) wherein computing component can automatically select a display mode in accordance with the orientation of the device as detected by the gravity sensing tilt sensor(s) or inertial accelerometers (column 3, line 57 through column 4, line 8);
- l) wherein a discrete signal preferably audio, visual or electrical is emitted when the unit attains one or more pre-determined angular positions (column 5, lines 34-49);
- m) means of recording, or of storing in a memory, a baseline or zero point for each axis from whence angles may be measured (Fig. 2, microprocessor 24).

With respect to claims 4 and 18: Regarding the term “graphic”, the examiner utilizes the following broadest definition: “of or relating to written representation” (the American Heritage Dictionary, 1992).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5, 8-11, 13, 16-17, 19, 22-25, 32, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richter in view of Heger et al. (US 5,956,260), Beckhart et al. (US 6,526,668 B1) and Franks (US 4,546,551).

Richter discloses an angle measurement device, as stated above in paragraph 5.

Richter further discloses wherein the function of angular measurement may be set to reset to zero at pre-determined or user selected angles (Fig. 1, reset button (30)).

Richter does not disclose wherein displays may be exhibited simultaneously, wherein one or more graphic displays resemble the form of a bull's eye bubble level with scales, wherein one or more graphic displays resemble the form of a curved-tube bubble level with scales, wherein displays appear on different faces of the machine's case according to the axis about which the measurements or calculations producing them are made, display a line representing the edge of the plane in which that angle lies, wherein the ambient temperature is measured and displayed for calibration purposes wherein an alarm signal is emitted that varies in accordance with the machine's proximity to pre-determined angles and presenting, at each applicable angle simulated bubble level display exhibiting an inclination reading of zero.

Heger et al. teach an inclination device that consists of wherein displays may be exhibited simultaneously (Fig. 1A), wherein displays appear on different faces of the machine's case according to the axis about which the measurements or calculations producing them are made (Fig. 1A), display a line representing the edge of the plane in which that angle lies (Fig. 1A and inclination segments 12 d-e) and wherein an alarm signal is emitted that varies in accordance

Art Unit: 2859

with the machine's proximity to pre-determined angles (Fig. 1A, loudspeaker icon 16).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the angle measurement device of Richter, so as to include displays exhibited simultaneously, a line representing an angle and an alarm, as taught by Heger et al., so as to provide additional measurement and audio features to enhance the precision in measurement during use of the device.

Beckhart et al. teach a leveling device that consists of wherein one or more graphic displays resemble the form of a bull's eye bubble level with scales (Fig. 1, graphic display 22) and presenting, at each applicable angle simulated bubble level display exhibiting an inclination reading of zero (Fig. 1, graphic display 22). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the angle measurement device of Richter, so as to include a bull's eye graphic display and simulated bubble level display exhibiting an inclination reading of zero, as taught by Beckhart et al., so as to provide an enhanced visual display during use of the device.

With respect to claims 9 and 23: the shape of the graphic display, i.e., curved-tube bubble level, absent any criticality, are only considered to be obvious modifications of the shape of the graphic display (Fig. 1, graphic display 22) disclosed by Richter and Beckhart et al. as the courts have held that a change in shape or configuration, without any criticality, is within the level of skill in the art as the particular shape claimed by Applicant is nothing more than one of numerous shapes that a person having ordinary skill in the art will find obvious to provide using routine experimentation based on its suitability for the intended use of the invention. See *In re*

Art Unit: 2859

Dailey, 149 USPQ 47 (CCPA 1976). Therefore, one skilled in the art would change the shape of the graphic display in order to suit the needs of the user of the device.

Franks teaches a measurement device that consists of wherein the ambient temperature is measured and displayed for calibration purposes (Fig. 1, temperature display 37). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the angle measurement device of Richter, so as to include an ambient temperature display, as taught by Franks, so as to provide enhanced measurement features during use of the device.

9. Claims 2-4, 6-7, 12, 14-15, 18, 20-21, 26-31, 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richter in view of Brunson et al (US 4,549,277).

Richter discloses an angle measurement device including the following:

With respect to Claim 2:

- a) one or more multi-axis gravity sensing tilt sensor(s) or inertial accelerometer(s) (Fig. 1A, sensor 22), or multiple tilt gravity sensing sensor(s) or inertial accelerometer(s), situated about different axis;
- b) a computing device (Fig. 1A, microprocessor 24) that receives inputs from the said gravity sensing tilt sensor(s) or inertial accelerometer(s) (Fig. 2);
- c) translates expressions of angular measurement and outputs the results for display, computation or extraction (Fig. 1, display 38).

With respect to Claims 3-4, 6-7, 12, 14-15, 18, 20-21, 26-31, 33 and 35:

- a) wherein a means of information extraction is incorporated comprising a communications port or electromagnetic transmitter (Fig. 1, laser 34);
- b) displays the results of the measurements and/or calculations in graphic, numeric format (Fig. 1);
- c) wherein the display format is user controllable allowing selection of either graphic or numeric format (Fig. 1);
- d) wherein multiple displays may be exhibited sequentially (column 3, line 57 through column 4, line 8);
- e) wherein multiple display modes are controllable, being user selectable to exhibit simultaneously or sequentially (column 3, line 57 through column 4, line 8);
- f) wherein angles may be measured and/or calculated in multiple modes comprising various levels of precision and of speed of measurement and/or calculation (Fig. 1);
- g) wherein the modes of measurement and /or calculation may be selected automatically by the machine itself (column 4, lines 37-50);
- h) wherein the modes of measurement and /or calculation may be manually selected by the user (column 3, line 57 through column 4, line 8);
- i) wherein one or more means of orienting the device with respect to distant or remote reference points is incorporated, these means being preferably by use of a laser light or other electromagnetic energy beam projected from the

device, but also including optical sight or reticule, audio beam, mechanical arm or extension, or any other manner of remote reference (Fig. 1, laser module 34);

- j) wherein the measurements and results of calculations may be recorded and later displayed or output for reference (column 3, line 57 through column 4, line 8);
- k) wherein computing component can automatically select a display mode in accordance with the orientation of the device as detected by the gravity sensing tilt sensor(s) or inertial accelerometers (column 3, line 57 through column 4, line 8);
- l) wherein a discrete signal preferably audio, visual or electrical is emitted when the unit attains one or more pre-determined angular positions (column 5, lines 34-49);
- m) means of recording, or of storing in a memory, a baseline or zero point for each axis from whence angles may be measured (Fig. 2, microprocessor 24).

Richter does not disclose calculating compounded angles of the various angles.

Brunson et al. teach a sensor device that consists of calculating compounded angles of the various angles (Fig. 3, sensor elements 4). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the angle measurement device of Richter, so as to include calculating compounded angles, as taught by

Art Unit: 2859

Brunson et al., so as to provide a means for increasing axial measurements in order to increase accuracy in measuring locations during use of the device.

With respect to claims 4 and 18: Regarding the term “graphic”, the examiner utilizes the following broadest definition: “of or relating to written representation” (the American Heritage Dictionary, 1992).

10. Claims 5, 8-11, 13, 16-17, 19, 22-25, 32, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richter and Brunson et al. in view of Heger et al., Beckhart et al. (US 6,526,668 B1) and Franks (US 4,546,551).

Richter discloses an angle measurement device, as stated above in paragraph 9.

Richter further discloses wherein the function of angular measurement may be set to reset to zero at pre-determined or user selected angles (Fig. 1, reset button (30)).

Richter does not disclose wherein displays may be exhibited simultaneously, wherein one or more graphic displays resemble the form of a bull’s eye bubble level with scales, wherein one or more graphic displays resemble the form of a curved-tube bubble level with scales, wherein displays appear on different faces of the machine’s case according to the axis about which the measurements or calculations producing them are made, display a line representing the edge of the plane in which that angle lies, wherein the ambient temperature is measured and displayed for calibration purposes wherein an alarm signal is emitted that varies in accordance with the machine’s proximity to pre-determined angles and presenting, at each applicable angle simulated bubble level display exhibiting an inclination reading of zero.

Heger et al. teach an inclination device that consists of wherein displays may be exhibited simultaneously (Fig. 1A), wherein displays appear on different faces of the machine's case according to the axis about which the measurements or calculations producing them are made (Fig. 1A), display a line representing the edge of the plane in which that angle lies (Fig. 1A and inclination segments 12 d-e) and wherein an alarm signal is emitted that varies in accordance with the machine's proximity to pre-determined angles (Fig. 1A, loudspeaker icon 16). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the angle measurement device of Richter and Brunson et al., so as to include displays exhibited simultaneously, a line representing an angle and an alarm, as taught by Heger et al., so as to provide additional measurement and audio features to enhance the precision in measurement during use of the device.

Beckhart et al. teach a leveling device that consists of wherein one or more graphic displays resemble the form of a bull's eye bubble level with scales (Fig. 1, graphic display 22) and presenting, at each applicable angle simulated bubble level display exhibiting an inclination reading of zero (Fig. 1, graphic display 22). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the angle measurement device of Richter and Brunson et al., so as to include a bull's eye graphic display and simulated bubble level display exhibiting an inclination reading of zero, as taught by Beckhart et al., so as to provide an enhanced visual display during use of the device.

With respect to claims 9 and 23: the shape of the graphic display, i.e., curved-tube bubble level, absent any criticality, are only considered to be obvious modifications of the shape of the graphic display (Fig. 1, graphic display 22) disclosed by Richter, Brunson et al. and Beckhart et al. as the courts have held that a change in shape or configuration, without any criticality, is within the level of skill in the art as the particular shape claimed by Applicant is nothing more than one of numerous shapes that a person having ordinary skill in the art will find obvious to provide using routine experimentation based on its suitability for the intended use of the invention. See *In re Dailey*, 149 USPQ 47 (CCPA 1976). Therefore, one skilled in the art would change the shape of the graphic display in order to suit the needs of the user of the device.

Franks teaches a measurement device that consists of wherein the ambient temperature is measured and displayed for calibration purposes (Fig. 1, temperature display 37). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the angle measurement device of Richter and Brunson et al., so as to include an ambient temperature display, as taught by Franks, so as to provide enhanced measurement features during use of the device.

Response to Arguments

11. Applicant's arguments filed on March 30, 2005 have been fully considered but they are not persuasive with respect to claims 1-10, 12-16, 18-24 and 26-36.

Art Unit: 2859

12. In response to applicant's argument that the references show certain features not found in the applicant's invention, it is noted that the features upon which applicant relies (i.e., gyroscopic) are not recited in the rejected claim(s), thus the Richter reference is interpreted to have a gravity sensing tilt sensor, although it is via a gyroscope.

13. Applicant's comment regarding the lack of suggestion in Heger for a calculating a compounded angle and displaying a line is not persuasive because Heger is only used to show that it is already known in the art to have a display displaying a line, the newly cited Brunson et al reference is used to show calculating the compounded angles.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tania C. Courson whose telephone number is (571) 272-2239. The examiner can normally be reached on Monday-Friday from 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached on (571) 272-2245.

The fax number for this Organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

Art Unit: 2859

applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DIEGO F.F. GUTIERREZ
SUPERVISORY PATENT EXAMINER
GROUP ART UNIT 2859

TCC
June 26, 2005

CHRISTOPHER W. FULTON
PRIMARY EXAMINER